2006 Inert Matrix Fuel – 11 Workshop
Tuesday October 10- Thursday October 12

Objective: It is the intent of IMF-11 to bring together the fuel cycle design and analysis communities with the reactor technology design community to review and discuss the issues related to the use and implementation of inert matrix fuel in fast and thermal reactor systems of the future.

IMF can help to overcome plutonium and minor actinide management as well as non-proliferation aspects that constitute with the back end of the nuclear fuel cycle key issues to increase the acceptance of nuclear energy. IMF could be used to profit of its energy content and increase the proliferation resistance in one move. IMF deals with this concern in an ecological and economical way. Over the last decade fundamental and applied work focused on research at the laboratory level, irradiation with accelerators or in research reactor and modeling efforts. The next challenge deals with introducing IMF in commercial Nuclear Power Plan's.

This workshop on Inert Matrix Fuel (IMF-11) will allow experts from scientific, industrial and international organizations to meet for discussing IMF issues after 11 years intensive R&D work in this field.

The Initiative for IMF promotes worldwide efforts for the development of this innovative technology. Multiple IMF sessions, fast reactor science and design, thermal reactor science, fuel cycle management, inert matrix fuels, low activation materials sessions, will concentrate on the key results obtained so far and on the clear vision foreseen in the IMF research for the coming years.

Presentation materials and abstract will be collected for this meeting and published in compact disc format.

Marriott Park City, Park City, Utah

Host:	Jon Carmack, (208) 526-6360	Revision # 0	
Protocol POC:	Leanne Medema, (208) 526-0036	Date agenda revised: 08/30/06	

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Tuesday, October 10, 2006

07:00 Registration

08:00 Welcome ..... Jon Carmack (INL)

08:15 Introduction ..... Dr. Claude Degueldre (PSI)

08:45 Overview of GNEP Program ..... Dr. Kemal Pasamehmetoglu (INL)

09:15 Overview of GNEP TRU Fuel Development ..... Dr. Mitchell Meyer

09:45 Morning Break

Session 1: Materials Science

Chairs: Prof. James Tulenko (Univ. of Florida) & Dr. Robert Schramm (NRG)

10:15 Fabrication of dual phase magnesia-zirconia ceramics doped with plutonia and erbia ..... Pavel Medvedev (INL)

10:45 Effect of magnesia and molybdenum matrices on americium transmutation in the experimental ADS MYRRHA (Invited) ..... V. Sobolev (SCK-CEN)

11:15 Fertile free metal fuel fabrication and characterization ..... J. Rory Kennedy (INL)

11:45 Lunch

13:00 Effects of fission product incorporation and ion beam irradiation in candidate ceramics for inert matrix fuel (Invited) ..... Dr. Lumin Wang (Univ. of Mich)

13:30 Thermal conductivity calculation of dual phase MgO-ZrO2-IMF using finite element method .. Brian Hawkes (INL)

14:00 Characterization of zirconium-magnesium ceramics for inert matrix fuel ..... Kiel Holliday (UNLV)

14:30 MgO-Pyrochlore Cercer compositions for Inert Matrix Materials ..... Samantha Yates (Univ. of Florida)

15:00 Afternoon Break

15:30 Atomistic Simulations of promising inert matrix fuel compounds ..... Chris Stanek (LANL)

16:00 Modeling radiation effects in ThO2 and Mo Based inert matrix fuel ..... Kevin Grovers (Univ. Libre de Bruxelles)

16:30 The Silicon Carbide Inert Matrix Fuel for Plutonium Disposition ..... Prof. James Tulenko (U of Florida)

17:00 Local atomic structure in (Zr,U)N inert matrix fuel ..... Marcus Walter (ITU)

17:30 Discussion ..... Session Chairs

18:15 Adjourn

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19:00 Dinner

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08:00 Introduction and Details for the Day ..... Jon Carmack (INL)

Reactor Science

Chairs: Dr. Michael Todosow (BNL) & Dr. Marc Depelch (CEA)

08:15 Introduction ..... Chairs

08:45 Main results of the development of IMF at A.A. Bochvar Institute ..... V. Savchenko (Bochvar)

09:15 Inert-Matrix Fuel Multi-recycle concepts ..... Edward Hoffman (ANL)

09:45 Neutronics studies for implementation of inert matrix fuels in PWRs ..... Gilad Raitses (BNL)

10:15 Morning Break

10:45 Accident analysis for inert matrix fuel implementation ..... Lap Cheng (BNL)

11:15 Safety and reliability studies of minor actinide burning in inert matrix fuels by means of the MACROS code ..... Sergei Lemehov (SCK-CEN)

11:45 Lunch

13:00 Modeling to Support Advanced Hybrid Fuels for Transmutation ..... Richard Whittman (PNNL)

13:30 Depleted molybdenum (DepMo) as metal matrix for CERMET inert matrix fuels ..... F. Klaassen

14:00 Review of burnable poison designs for Pu-based inert matrix PWR core ..... Alex Galperin (U. of Negev)

14:30 Spent Nuclear Fuel Derived Burnable Poisons in Thermal and Fast Systems ..... Samuel Bays (U. of Florida)

15:00 Afternoon Break

15:30 Thermal Transport Properties of Candidate IMF Materials by Simulation ..... Priyank Shukla (U. of Florida)

16:00 Discussion ..... Chairs

17:00 Adjourn for evening (on your own)

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Thursday, October 12, 2006

08:00 Introduction and Details for the Day ..... Jon Carmack (INL)

Implementation

Chairs: Dr. Gregory Lumpkin (Univ. of Cambridge) & Dr. Lumin Wang (Univ. of Michigan)

08:15 Introduction ..... Chairs

08:45 Radiation tolerance in oxides structurally-related to fluorite (Invited) ..... Dr. Kurt Sikafus (LANL)

09:15 Evaluation of REE impact on the stability of cubic Pu and Zr oxides related to Inert Matrix Fuels for Repository Storage ..... T. Nenoff (SNL)

09:45 Mechanical and crystallographic properties of stabilized-zirconia and zirconate pyrochlore ..... T. Arima (Kyushu Univ.)

10:15 Morning Break

10:30 Experimental study programme on criticality of enriched uranium and plutonium at the ..... A-site, ETRR-1 Laboratory ..... Ashraf Mohamed (Alexandria Univ.)

11:00 Post Irradiation Examinations of an Americium-containing transmutation target (EFTTRA T4bis) at high Americium burn-up ..... F. Klaassen (NRG)

11:30 Irradiation performance of fertile-free metallic alloys for actinide transmutation ..... Bruce Hilton (INL)

12:00 Discussion, IMF-12, Closure of Meeting ..... Jon Carmack & Claude Degeuldre

12:30 Adjourn

Meeting Coordinator(s):

Jon Carmack, Idaho National Laboratory, 208-526-6360

Hotel Information

Marriott Park City
Park City, Utah
1-435-649-2900
Use “INLINLA” Group Code

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Directions to Park City Marriott from SLC Airport (Map on Next Page)

Directions		Distance
Total Est. Time: 42 minutes	**Total Est. Distance:** 36.97 miles	
START	**1:** Start out going SOUTH on N 3700 W.	0.2 miles
	2: Turn SLIGHT RIGHT.	0.1 miles
	3: Turn SLIGHT RIGHT.	0.6 miles
	4: Turn RIGHT toward AIRPORT EXIT.	0.4 miles
EAST 80	**5:** Merge onto I-80 E toward OGDEN / PROVO.	6.7 miles
EAST 80	**6:** Merge onto I-80 E via EXIT 304 toward CHEYENNE.	21.6 miles
145 EXIT	**7:** Take the UT-224 S exit- EXIT 145- toward KIMBALL JCT. / PARK CITY.	0.5 miles
	8: Merge onto UT-224 toward KIMBALL JCT / PARK CITY.	5.5 miles
	9: Turn LEFT onto KEARNS BLVD / UT-248.	0.6 miles
	10: Turn RIGHT onto SIDEWINDER DR.	0.2 miles
END	**11:** End at **Park City Marriott** 1895 Sidewinder Dr, Park City, UT 84060, US	
Total Est. Time: 42 minutes	**Total Est. Distance:** 36.97 miles	

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